



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY 681-2013**

**LYNDALE DRIVE- MONCK AVENUE TO AVENUE TACHE,  
RIVERBANK STABILIZATION**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

LYNDALE DRIVE- MONCK AVENUE TO AVENUE TACHE, RIVERBANK STABILIZATION

### **B2. SUBMISSION DEADLINE**

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, August 23, 2013.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

### **B3. BIDDERS' CONFERENCE**

- B3.1 Further to C3.1, the Contract Administrator will hold a Bidders' conference at Trek Geotechnical (1712 St. James Street, Winnipeg, MB) from 1:00 p.m. to 2:00 p.m. on August 19, 2013.
- B3.2 The Bidder is advised that attendance at the Bidders' Conference is not required.
- B3.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Bidders' Conference unless that information or interpretation is provided by the Contract Administrator in writing.

### **B4. ENQUIRIES**

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

### **B5. CONFIDENTIALITY**

- B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
  - (a) was known to the Bidder before receipt hereof; or
  - (b) becomes publicly known other than through the Bidder; or
  - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

## **B6. ADDENDA**

B6.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B7. SUBSTITUTES**

B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B7.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B7.10 Notwithstanding B7.2 to B7.9, in accordance with B8.6, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B16.1(a).

## B8. **BID COMPONENTS**

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices,
  - (c) Bid Security
    - (i) Form G1: Bid Bond and Agreement to Bond, or  
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or  
a certified cheque or draft;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B8.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).
- B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B8.8 Bids shall be submitted to:

The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

**B9. BID**

B9.1 The Bidder shall complete Form A: Bid, making all required entries.

B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B9.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, shall be affixed;
- (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

**B10. PRICES**

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B11. QUALIFICATION**

- B11.1 The Bidder shall:
- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
  - (b) be financially capable of carrying out the terms of the Contract; and
  - (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B11.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B11.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
  - (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
  - (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- B11.4 Further to B11.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
  - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>)
- B11.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B11.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

## **B12. BID SECURITY**

B12.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B12.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B12.1.2 All signatures on bid securities shall be original.

B12.1.3 The Bidder shall sign the Bid Bond.

B12.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B12.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B12.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B12.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B12.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B12.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

## **B13. OPENING OF BIDS AND RELEASE OF INFORMATION**

B13.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B13.1.1 Bidders or their representatives may attend.

B13.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B12 will not be read out.

B13.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

B13.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page

at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

- B13.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

**B14. IRREVOCABLE BID**

- B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B14.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

**B15. WITHDRAWAL OF BIDS**

- B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B15.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
  - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
  - (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.
- B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

**B16. EVALUATION OF BIDS**

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation therefrom (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B11 (pass/fail);
  - (c) Total Bid Price;
  - (d) Economic analysis of any approved alternative pursuant to B7.
- B16.2 Further to B16.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other

irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

- B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B16.4 Further to B16.1 (c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B16.4.1 Further to B16.1 (a), in the event that a unit price is not provided on form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

## **B17. AWARD OF CONTRACT**

- B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B17.2.1 Without limiting the generality of B17.1, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
  - (b) the prices are materially in excess of the prices received for similar work in the past;
  - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
  - (d) only one Bid is received; or
  - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B17.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B16.
- B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

## **PART C - GENERAL CONDITIONS**

### **C0. GENERAL CONDITIONS**

- C0.1 The General Conditions for Construction (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The General Conditions for Construction are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](http://www.winnipeg.ca/matmgt/gen_cond.stm)
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix "C" designates a section, clause or subclause in the General Conditions for Construction.

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

D1.1 In addition to the General Conditions for Construction, these Supplemental Conditions are applicable to the Work of the Contract.

#### **D2. SCOPE OF WORK**

D2.1 The Work to be done under the Contract shall consist of the installation of rockfill columns to stabilize the riverbank along Lyndale Drive between (approximately) Monck Avenue and Avenue Tache.

D2.2 The major components of the Work are as follows:

- (a) Construction of access ramp and working platform.
- (b) Installation and densification of Rockfill Columns.
- (c) Asphalt pavement repair and curb & gutter renewal on Lyndale Drive.
- (d) Site restoration following construction of the stabilization works.

#### **D3 CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is Trek Geotechnical, represented by:

Michael Van Helden, Ph.D., P.Eng.  
1712 St. James Street  
Winnipeg, Manitoba  
R3H 0L3

Telephone No. 204 975-9433  
Facsimile No. 204 975-9435

D3.2 At the pre-construction meeting, Michael Van Helden will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D3.3 Bids Submissions must be submitted to the address in B8.8

#### **D4. CONTRACTOR'S SUPERVISOR**

D4.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

#### **D5. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D5.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

- D5.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D5.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
  - (b) the Contract, all deliverables produced or developed; and
  - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D5.4 A Contractor who violates any provision of D5 may be determined to be in breach of Contract.

## **D6. NOTICES**

- D6.1 Except as provided for in C23.2.2., all notices, requests, nomination, proposals, consents, approvals, statements, authorizations, document, or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D6.2 All notices, requests, nomination, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D3.1.
- D6.3 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

## **D7. FURNISHING OF DOCUMENTS**

- D7.1 Upon Award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

## **SUBMISSIONS**

### **D8. AUTHORITY TO CARRY ON BUSINESS**

- D8.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

### **D9. SAFE WORK PLAN**

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgmt/safety/default.stm>

## **D10. INSURANCE**

D10.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D10.2 Deductibles shall be borne by the Contractor.

D10.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract.

D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

## **D11. PERFORMANCE SECURITY**

D11.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D11.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B12.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the C4.1 for the return of the executed Contract.

## **D12. SUBCONTRACTOR LIST**

D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the C4.1 for the return of the executed Contract.

## **D13. EQUIPMENT LIST**

The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposed to utilize (Form K: Equipment List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site.

## **D14. DETAILED WORK SCHEDULE**

D14.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

D14.2 The detailed work schedule shall consist of the following:

- (a) a Gantt chart for the Work;  
acceptable to the Contract Administrator.

D14.3 Further to D14.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

## **SCHEDULE OF WORK**

### **D15. COMMENCEMENT**

D15.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D15.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence of authority to carry on business specified in D8;
  - (ii) evidence of the workers compensation coverage specified in C6.15;
  - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
  - (iv) the Safe Work Plan specified in D9;
  - (v) evidence of the insurance specified in D10;
  - (vi) the performance security specified in D11;
  - (vii) the subcontractor list specified in D12;
  - (viii) the equipment list specified in D13; and
  - (ix) the detailed work schedule specified in D14.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D15.3 The Contractor shall commence the Work within seven (7) Calendar Days of receipt of the letter of intent.

D15.4 The City intends to award this Contract by August 30, 2013

D15.4.1 If the actual date of award is later than the intended date, the dates specified for critical stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

**D16. RESTRICTED WORK HOURS**

D16.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

**D17. WORK BY OTHERS**

D17.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Manitoba Hydro- replacing underground street lighting cable at access ramp;
- (b) Various works on survey monuments by Geomatics Services Branch of the Planning Property and Development Department at various locations throughout the sites;

**D18. SEQUENCE OF WORK**

D18.1 Further to C6.1, the sequence of work may be as follows:

D18.1.1 After the completion of the westerly half of the Rockfill Columns (approximately 66 Rockfill Columns), not including densification, the Contractor may begin construction of the curb & gutter renewal and asphalt pavement repairs on Lyndale Drive.

**D19. CRITICAL STAGES**

D19.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

(a) "Rockfill Columns" – installation of Rockfill Columns, not including densification must be complete by October 18, 2013.

D19.2 When the Contractor considers the Work associated with "Rockfill Columns" to be completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Completion. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D19.3 The date on which the "Rockfill Columns" Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of "Rockfill Columns" has been achieved.

D19.4 If river levels at the site reach an elevation of 225.5 metres or higher and the Contractor cannot safely work, the date specified for the "Rockfill Columns" critical stage will be adjusted by the number of days where this condition applies.

**D20. SUBSTANTIAL PERFORMANCE**

D20.1 The Contractor shall achieve Substantial Performance by November 15, 2013.

D20.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D20.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D20.4 If river levels at the site reach an elevation of 225.5 metres or higher and the Contractor cannot safely work, the date specified for Substantial Performance will be adjusted by the number of days where this condition applies.

#### **D21. TOTAL PERFORMANCE**

D21.1 The Contractor shall achieve Total Performance by November 22, 2013.

D21.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D21.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D21.4 If river levels at the site reach an elevation of 225.5 metres or higher and the Contractor cannot safely work, the date specified for Total Performance will be adjusted by the number of days where this condition applies.

#### **D22. LIQUIDATED DAMAGES**

D22.1 If the Contractor fails to achieve critical stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) "Rockfill Columns" Critical Stage – three thousand dollars (\$3,000);
- (b) Substantial Performance- three thousand dollars (\$3,000);
- (c) Total Performance- one thousand dollars (\$1,000).

D22.2 The amounts specified for liquidated damages in D22.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

#### **D23. SCHEDULED MAINTENANCE**

D23.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Reflective Crack Sealing during one year warranty period as specified in CW 3250-R7,
- (b) Sodding as specified in CW 3510-R9;

D23.2 Determination of critical stages, Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

## **CONTROL OF WORK**

### **D24. JOB MEETINGS**

- D24.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City of Winnipeg and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City, and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

### **D25. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D25.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

### **D26. DAMAGE TO EXISTING STRUCTURES AND PROPERTY**

- D26.1 Further to Section 3.13 of CW 1130 of the General Requirements, special care will be taken to avoid damage to existing adjacent structures and properties during the course of Work.
- D26.2 Any damage caused by the Contractor or his Subcontractors to the adjacent structure properties shall be promptly repaired by the Contractor at his own expense to the satisfaction of the Contract Administrator.

### **D27. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

- D27.1 Further to B11.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B11.4.

### **D28. ENVIRONMENTAL PROTECTION**

- D28.1 The Contractor shall plan and implement the Work of the Contract strictly in accordance with the requirement of the environmental protection measures proscribed by law and as specified herein.
- D28.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work.
- D28.3 Federal
- (a) Canadian Environmental Protection Act (CEPA) c.16
  - (b) Transportation of Dangerous Goods Act and Regulations c.34
- D28.4 Provincial
- (a) The Dangerous Good Handling and Transportation Act D12
  - (b) The Endangered Species Act E111
  - (c) The Environment Act c. E125
  - (d) The Fire Prevention Act F80
  - (e) The Manitoba Nuisance Act N120
  - (f) The Public Health Act c. P210

- (g) The Workplace Safety and Health Act W 120
- (h) And current applicable associated regulations

D28.5 The Contractor shall have a sufficient supply of containment and clean-up materials such as absorbents, plastic oil booms, and oversized recovery drums (e.g. Spill Kit) available on Site.

D28.6 Fuel Handling and Storage

- (a) All fuel handling and storage facilities shall comply with the Dangerous Good and Transportation Act, Storage and Handling of Petroleum Products Regulation and any local land use permits.
- (b) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
- (c) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (d) Products transferred from the fuel storage area(s) to specific Work sites shall not exceed the daily usage requirement.
- (e) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
- (f) Refuelling of mobile equipment (i.e. equipment which can be moved to the top of bank) and vehicles shall take place at least 100 metres from a watercourse.
- (g) The area around storage sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
- (h) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored, nearby on Site. The Contractor shall ensure that additional material can be made available on short notice.

D28.7 Waste Handling and Disposal

- (a) The construction area shall be kept clean and orderly at all times during and at completion of construction.
- (b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the Construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
- (c) Indiscriminate dumping, littering, or abandonment shall not take place.
- (d) No on-site burning of waste is permitted.
- (e) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

D28.8 Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) Dangerous goods/hazardous waste are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.

D28.9 Emergency Spill Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety to the Contract Administrator and Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency telephone number (204) 945-4888.

- (c) The Contractor shall designate a qualified supervisor as the on-Site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-Site emergency response coordinator:
  - (i.) Notify emergency-response coordinator of the accident
  - (ii.) Identify exact location and time of accident
  - (iii.) Indicate injuries, if any
  - (iv.) Request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
  - (v.) Assess situation and gather information on the status of the situation, noting:
    - Personnel on Site
    - Cause and effect of spill
    - Estimated extent of damage
    - Amount and type of material involved
    - Proximity to waterways
  - (vi.) If safe to do so, try to stop the dispersion or flow of spill material:
    - Approach from upwind
    - Stop or reduce leak if safe to do
    - Dyke spill material with dry, inert sorbent material or dry clay soil or sand
    - Prevent spill material from entering waterways and utilities by dyking
    - Prevent spill material from entering utilities, utility manholes, and other openings by covering the openings with rubber spill mats or by dyking
  - (vii.) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (e) The emergency response coordinator shall ensure that all environmental accidents involving contaminant shall be documented and reported to the Manitoba Conservation Accident Report Regulation 439/87.

## **D29. PROTECTION OF HERITAGE RESOURCES**

- D29.1 The Contractor shall inform the Contract Administrator of any materials, items or conditions discovered during the course of the Work that could be of historical or archaeological significance.
- D29.2 The Contractor is advised that there may be temporary delays in construction to provide the Archaeologist an opportunity to evaluate and document conditions of possible archaeological significance. In this event, every effort shall be taken to minimize the impacts on the Contractor's operations.
- D29.3 The Contractor shall cooperate fully with the Contract Administrator and the Archaeologist by promptly reporting any unusual conditions encountered during construction and assisting in the evaluation and documentation of archaeological information.

## **MEASUREMENT AND PAYMENT**

### **D30. PAYMENT**

D30.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D31. WARRANTY**

D31.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D31.1.1 For the purpose of Performance Security, the warranty period shall be two (2) years.

D31.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D31.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

**FORM H1: PERFORMANCE BOND**  
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

\_\_\_\_\_ (hereinafter called the "Principal"), and

\_\_\_\_\_ (hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

\_\_\_\_\_ dollars (\$\_\_\_\_\_)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

Bid Opportunity 681-2013

LYNDALE DRIVE- MONCK AVENUE TO AVENUE TACHE, RIVERBANK STABILIZATION

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

SIGNED AND SEALED  
in the presence of:

\_\_\_\_\_  
(Witness as to Principal if no seal)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT  
(PERFORMANCE SECURITY)**  
(See D11)

---

(Date)

The City of Winnipeg  
Legal Services Department  
185 King Street, 3<sup>rd</sup> Floor  
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY – Bid Opportunity 681-2013

LYNDALE DRIVE- MONCK AVENUE TO AVENUE TACHE, RIVERBANK STABILIZATION

Pursuant to the request of and for the account of our customer,

---

(Name of Contractor)

---

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

---

\_\_\_\_\_ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

---

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

\_\_\_\_\_  
(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

\_\_\_\_\_  
(Name of bank or financial institution)

Per: \_\_\_\_\_  
(Authorized Signing Officer)

Per: \_\_\_\_\_  
(Authorized Signing Officer)



**FORM K: EQUIPMENT**  
(See D13)

LYNDALE DRIVE- MONCK AVENUE TO AVENUE TACHE, RIVERBANK STABILIZATION

<p>1. Category/type: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 The City of Winnipeg Standard Construction Specifications in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 The City of Winnipeg Standard Construction Specifications is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgmt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over The City of Winnipeg Standard Construction Specifications.
- E1.3 The following are applicable to the Work:

<u>DrawingNo.</u>	<u>DrawingName/Title</u>	<u>Drawing (Original)Sheet Size</u>
RW751-2013-00	Cover Sheet, Location Plan & Drawing Index	A1
RW751-2013-01	Existing Conditions	A1
RW751-2013-02	Site Access, Working Platform Plan & Sections	A1
RW751-2013-03	Rockfill Columns Plan, Section & Details	A1
RW751-2013-04	Site Restoration Plan	A1

#### E2. GEOTECHNICAL INFORMATION

- E2.1 Further to C3.1, the geotechnical information is provided to aid the Contractor's evaluation of existing soil conditions.
- E2.2 The test hole logs and groundwater level information are provided to supplement the Contractor's evaluation of the Site conditions in the Work area. The information is considered accurate at the locations indicated at the time of the investigations. However, variations in subsurface conditions may exist between test holes and fluctuations in groundwater can be expected seasonally.
- E2.3 Test hole TH-13-01 was drilled in May 2013 as part of an investigation to evaluate the riverbank movements. Test holes TH-01 and TH-02 were drilled as part of a geotechnical investigation in 1998 for the design of the retaining wall by UMA Engineering Ltd. between Monck Avenue and Claremont Avenue.
- E2.4 A copy of the report Lyndale Drive Dyke WW-2 Riverbank Stabilization Investigation is available for review at the office of Trek Geotechnical Inc.

### **E3. PROTECTION OF INSTRUMENTATION**

- E3.1 The Contractor is advised that geotechnical instrumentation (slope inclinometer and piezometers) have been installed in Test Hole TH-13-01 at the location shown on the Drawings.
- E3.2 The Contractor shall take necessary precautions to prevent damage as a result of his Work to the geotechnical instrumentation. In addition, the Contractor shall take necessary precautions to prevent damage as a result of his Work to any new instrumentation that is installed.
- E3.3 The Contractor shall repair or replace instrumentation damaged as a result of his Work at no cost to the City.

### **E4. WATERWAY BY-LAW AND PERMITS**

- E4.1 The Contractor shall note that all Works fall within 107 metres (350 feet) of the regulated summer water level of the Red River and are therefore within the jurisdiction of the Waterway By-law. The Contract Administrator will apply and pay for the required Waterway Permits for the Work. The Contractor shall make himself aware of and adhere to all conditions imposed by the permit.
- E4.2 Under no circumstances will stockpiling of any material be permitted within 107 metres of the regulated summer water level of the Red River without the approval of the Contract Administrator.

### **E5. OFFICE FACILITIES**

- E5.1 The Contractor shall supply office facilities meeting the following requirements:
- (a) The field office shall be for the exclusive use of the Contract Administrator.
  - (b) The building shall be conveniently located near the site of the Work.
  - (c) The building shall have a minimum floor area of 20 square metres, a height of 2.4m with two windows for cross ventilation and a door entrance with a suitable lock.
  - (d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
  - (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
  - (f) The building shall be furnished with one desk, table 3m X 1.2m, one four drawer legal size filing cabinet and a minimum of 8 chairs.
  - (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
  - (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he/she deems it necessary.
- E5.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.
- E5.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.
- E5.4 Office facilities will be considered incidental to Mobilization and Demobilization, and no additional measurement or payment will be made for work described in this specification.

## **E6. PROTECTION OF EXISTING TREES**

- E6.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:
- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
  - (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
  - (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
  - (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
  - (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.
- E6.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.
- E6.2.1 Protection of existing trees will be considered incidental to Mobilization and Demobilization and no additional measurement or payment will be made for work described in this specification.
- E6.3 Protection of existing trees will be considered incidental to Mobilization and Demobilization and no additional measurement or payment will be made for work described in this Specification.
- E6.4 Except as required in clause E6.1(c) and E6.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

## **E7. TRAFFIC MANAGEMENT**

- E7.1 Further to clause 3.7 of CW 1130:
- E7.1.1 Lyndale Drive will be closed to all traffic between Monck Avenue and Crawford Avenue. The Contractor shall sign the street "Road Closed" in accordance with the Manual of Temporary Traffic Control.
  - E7.1.2 The intersections of Lyndale Drive and Monck Avenue and Lyndale Drive and Crawford Avenue shall remain open to traffic at all times during construction.
  - E7.1.3 The Contractor shall maintain access for the residents of 539 Lyndale Drive from Avenue Tache to their front driveway at all times during construction.
  - E7.1.4 Should the contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
  - E7.1.5 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.
  - E7.1.6 Traffic management will be considered incidental to Mobilization and Demobilization and no additional measurement payments will be made for work described in this specification.

## **E8. PEDESTRIAN SAFETY**

- E8.1 The pedestrian sidewalk (gravel path) along the south side of Lyndale Drive shall be closed during construction in accordance with the Manual of Temporary Traffic Control. Signage shall be installed directing pedestrians to use the north side of Lyndale Drive.
- E8.2 During the project, a temporary snow fence shall be installed and maintained around any excavations, steep drop-offs or other conditions hazardous to pedestrians.
- E8.3 A fence and appropriate signs shall be placed across the top of the access ramp during non-working hours to discourage public access to the Site.
- E8.4 Pedestrian safety will be considered incidental to Mobilization and Demobilization and no additional measurement or payment will be made for work described in this specification.

## **E9. WATER OBTAINED FROM THE CITY**

- E9.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

## **E10. SURFACE RESTORATIONS**

- E10.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

## **E11. MOBILIZATION AND DEMOBILIZATION**

- E11.1 Description
- (a) This Specification shall cover all operations relating to the mobilization and demobilization of the contractor to the site, as specified herein
  - (b) The Work to be done by the contractor under this specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all works as hereinafter specified.
- E11.2 Materials
- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this specification.
- E11.3 Construction Methods
- (a) The Contractor shall obtain written permission from private property owners for any use of private property. A copy of written permission shall be provided to the Contract Administrator prior us of the property in question.
  - (b) The Contractor's Site supervisor is required to carry at all times a cellular telephone, with voice mail.
  - (c) This section also included travel and accommodation, set-up and demobilization of site offices, storage conveniences and other temporary facilities, construction plant, and other items not required to form part of the permanent works and not covered by other prices.
- E11.4 Measurement and Payment
- (a) Mobilization and demobilization will be paid for on a Lump Sum basis under "Mobilization and Demobilization," which price will be payment in full for supplying all materials and

performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

- (b) Mobilization and demobilization will be paid for at a percentage of the Contract Lump Sum Price for "Mobilization and Demobilization" specified as follows:
  - (i.) 30% when the Contract Administrator is satisfied that construction has commenced
  - (ii.) 60% when Substantial Performance has been met.
  - (iii.) 10% upon completion of the project.

## **E12. WORKING PLATFORM AND ACCESS RAMP**

### **E12.1 Description**

E12.2 The specification shall cover the following Site development and restoration items:

- (a) Removal of the timber pile wall, as shown on the Drawings, to facilitate the construction of the access ramp.
- (b) Removal, salvage, and reinstallation of existing guardrail .
- (c) Construction of access ramp to the work area.
- (d) Construction of the working platform to install rockfill columns.
- (e) Removal of access ramp and working platform after construction.
- (f) Restoration of existing gravel sidewalk and boulevard at access ramp location.

E12.3 The work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E12.4 This specification shall supplement CW3170

### **E12.5 Materials**

#### **E12.5.1 Fills**

- (a) The working platform and access ramp are to be constructed by balance cut and fill.
- (b) The Contractor shall be responsible for supplying additional suitable fill from an off-site source if required.

### **E12.6 Construction Methods**

#### **E12.6.1 Access Ramp**

- (a) A pre-approved access ramp geometry is shown on the Drawings.
- (b) The access ramp shall be located within the Work area and any modifications to the pre-approved access ramp geometry must be approved by the Contract Administrator prior to construction.
- (c) The Contractor will be required to remove the top of the existing timber pile wall as shown on the Drawings and make an opening in the guardrail.
- (d) Methods and procedures that prevent damage or risk of damage to existing trees, infrastructure and existing facilities on Site, shall be employed during construction and maintenance of the ramps. This may include installing fencing to identify the edges of the ramps and prevent inadvertent entry of construction equipment into treed areas.
- (e) Fills shall not be placed for the construction or maintenance of the ramp without prior acceptance by the Contract Administrator.

#### **E12.6.2 Working Platform**

- (a) The Contractor shall construct a level working platform to the elevations shown on the Drawings to facilitate installation of the rockfill columns along the riverbank.
- (b) Clearing and grubbing which will include tree and driftwood removal shall be done in accordance with CW3010.
- (c) The Contractor shall be responsible for maintaining the platform and ensuring that all fills are placed and remain in a compacted state to support construction equipment during construction.
- (d) Surplus excavated materials shall be immediately removed from the Site. Stockpiling of excavated materials shall not be permitted unless approved by the Contract Administrator.
- (e) The Contractor shall re-shape the working platform to the final riverbank grades shown on the Drawings upon completion of rockfill column installation.

**E12.7 Measurement and Payment**

E12.7.1 Constructing, maintaining and restoring the access ramp and the working platform will not be measured. This item of work will be paid for at the Contract Lump Sum price for "Construct and Restore Working Platform and Access Ramp", performed in accordance with this Specification and accepted by the Contract Administrator.

**E13. ROCKFILL COLUMNS**

E13.1 This Specification shall cover excavation, backfilling and densification of the rockfill columns. The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

**E13.2 Materials**

**E13.2.1 General**

The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

**E13.2.2 Crushed Rockfill**

- (a) The material used for the rockfill column fill shall be 150 mm down crushed rockfill manufactured from sound durable limestone or dolomite meeting the following properties:
  - (iv.) minimum bulk specific gravity of 2.6 (ASTM C127),
  - (v.) maximum Los Angeles abrasion loss of 35% (ASTM C131),
  - (vi.) maximum soundness loss of 18% (ASTM C88)
  - (vii.) maximum absorption of 2.5% (ASTM C127),
  - (viii.) gradation requirement, as follows:

<b>Gradation Requirements 150 mm Crushed Rockfill</b>	
Canadian Metric Sieve Size	Percent of Total Dry Weight Passing Each Sieve
150 000	100
50 000	75-90
25 000	20-50
80	0-5

- (ix.) maximum moisture content of 3 percent by weight (ASTM D2216-98).

**E13.2.3 Clay Cap**

The clay cap at the top of the Rockfill Columns shall consist of high plasticity clay material with a liquid limit in excess of 50%. The clay shall be free of deleterious material such as roots, organic material, ice, snow or other unsuitable materials, and may be salvaged from the on-site excavation, as approved by the Contract Administrator. Frozen material will not be accepted.

### E13.3 Submittals

E13.3.1 The Contractor shall submit the proposed supplier(s) and location of quarry sites for supply of the crushed rockfill and confirm that sufficient quantity of specified rock is available at least ten (10) business days prior to the commencement of construction of rockfill columns.

E13.3.2 The Contractor shall supply a representative sample of 150 mm crushed rockfill at least ten (10) business days prior to the commencement of construction of rockfill columns.

### E13.4 Testing and Approval

E13.4.1 All materials set forth in this Specification shall be subject to inspection and testing by the Contract Administrator or by the testing laboratory designated by the Contract Administrator. There shall be no charge for any materials supplied to the Contract Administrator for testing purposes.

E13.4.2 The Contract Administrator may visit proposed quarry sites for inspection of the proposed crushed rockfill and quarry faces prior to supply and placement of material.

E13.4.3 No supply and placement of crushed rockfill will be permitted prior to the Contract Administrator approving the source.

E13.4.4 The procedures for preparation of all crushed rockfill samples for use in material inspection and testing shall be subject to review and acceptance by the Contract Administrator for individual tests. The samples may be obtained from crushed and processed material at the sizing necessary for specific tests if the material is deemed to be representative of the crushed rockfill that will be used, subject to the acceptance of the Contract Administrator.

E13.4.5 The testing frequency necessary to confirm the material quality will be specified at the discretion of the Contract Administrator.

### E13.5 Construction Methods

#### E13.5.1 Excavation

- (a) The rockfill column shafts shall be excavated by drill rig augers to the depth necessary to achieve 1.0 m penetration into dense glacial till. Note that the dense glacial till contact elevation may vary and the depth of excavation may differ from that shown on the Drawings.
- (b) Excavated material shall be removed from the riverbank upon excavation and disposed of off-site.
- (c) Any deleterious or sloughed material shall be removed from the rockfill column shaft prior to backfilling.
- (d) The construction for the rockfill columns shall be a continuous operation with backfilling immediately following excavation.
- (e) The Contractor must complete backfilling of each rockfill column before commencing to excavate adjacent rockfill columns.

#### E13.5.2 Erosion and Sediment Control

- (a) Discharge of water contained in the rockfill columns from displacement of the crushed rockfill during backfilling will be acceptable. The Contractor shall be responsible to contain and direct any displaced water such that it will not affect other construction work or cause erosion of the native riverbank soils or introduce sediment laden water directly into the river.

#### E13.5.3 Deep Sleeving

- (a) The Contractor shall install additional sleeving as required to control sloughing and caving of the shafts.
- (b) Deep sleeving shall only be installed where it is not possible to advance and maintain an open hole during the excavating, backfilling and compacting procedures.
- (c) The Contractor shall only be paid for deep sleeving approved by the Contract Administrator.

#### E13.5.4 Surface Sleeving

- (a) The Contractor shall install surface sleeving in each rockfill column shaft where required to maintain safe conditions around each shaft. The surface sleeving shall extend to a minimum depth of 2 metres below grade and 0.3 m above grade.
- (b) The surface sleeving shall be installed prior to drilling shafts deeper than 2 metres.
- (c) There shall be no separate measurement and payment for Surface Sleeving.

#### E13.5.5 Backfilling and Densification

- (a) Densification of crushed rockfill shall be achieved using vibratory densification equipment capable of penetrating the entire depth of the crushed rockfill in the rockfill column shaft.
- (b) Compacting the crushed rockfill with drill augers, free fall of a weight or a backhoe bucket shall not be accepted.
- (c) The densification method shall achieve a relative increase in density of 15% after initial placement of the crushed rockfill, as determined by measuring the vertical drop in crushed rockfill after densification.
- (d) The Contractor shall demonstrate that the methods and means of compacting the rockfill is suitable to achieve the specified relative increase in density of 15% on the first three (3) production rockfill columns (minimum).

#### E13.5.6 Supply of Crushed Rockfill

- (a) The Contractor shall monitor the supply rate of crushed rockfill to ensure that the backfilling and compacting operations are not delayed.
- (b) Rockfill column shafts shall not be left open for any unnecessary lengths of time.

#### E13.5.7 Stockpiling of Crushed Rockfill

- (d) Stockpiling of rockfill material will not be permitted on the riverbank except on top of backfilled rockfill columns as approved by the Contract Administrator.

#### E13.5.8 Contaminated Crushed Rockfill

- (a) Where crushed rockfill becomes contaminated during construction of the rockfill columns, the Contractor shall promptly advise the Contract Administrator. The Contract Administrator will advise the Contractor.
  - (i.) Whether the affected crushed rockfill must be removed and disposed of or may remain in place.
  - (ii.) Whether the crushed rockfill to be disposed of may be directly hauled to an approved disposal location or whether the material to be disposed of must be weighed prior to disposal.
- (a) Where crushed rockfill has become contaminated due to the Contractor's method of operation, negligence, failure to backfill in a timely manner, etc. the material shall be rejected and shall be weighed prior to disposal for deduction from the total weight of crushed limestone measure for payment.
- (b) Where crushed rockfill has become contaminated due to conditions beyond the control of the Contractor, the material shall be removed and disposed of incidental to the cost of placing new backfill material.

#### E13.5.9 Clay Cap

- (a) The rockfill columns shall be sealed with a clay cap as shown on the Drawings.
- (b) The thickness of clay cap shall be measured below final grade following riverbank grading.
- (c) The clay cap shall be compacted to a minimum of 95 percent of the Standard Proctor Maximum Dry Density as determined by ASTM D698 using unfrozen clay. Placing and compacting clay shall not be permitted if the specified density cannot be achieved due to weather conditions.

#### E13.6 Measurement and Payment

##### E13.6.1 Drilling 2.1 m Diameter Rockfill Column Shafts

- (a) Drilling 2.1 m diameter rockfill column shafts shall be measured and paid for on a vertical length basis. The length to be paid shall be the total length in vertical metres (v.m) of "Drill Rockfill Column Shafts," completed in accordance with this Specification as measured below the working platform elevation shown on the Drawings and accepted by the Contract Administrator.

##### E13.6.2 Deep Sleeving Rockfill Column Shafts

- (a) Deep sleeving shall be measured and paid for on a vertical length basis. The length to be paid shall be the total length in vertical metres of "Deep Sleeving Rockfill Columns Shafts", completed in accordance with this Specification as measured below the working platform elevation shown on the Drawings and accepted by the Contract Administrator.
- (b) The Contractor shall not be paid for sleeving above the working platform elevation shown on the Drawings.
- (c) The Contractor shall not be paid for additional excavation to auger oversized shafts to install the sleeving. Such additional excavation shall be incidental to the cost for sleeving.
- (d) The Contractor shall not be paid for installing over-sized sleeving or installing more than one size of sleeving in a shaft.
- (e) In cases where more than one size of sleeving is installed in a shaft the length of sleeving shall be measured as the total length of shaft sleeved not the total length of sleeve(s) used.

##### E13.6.3 Supply, Place and Compact Crushed Rockfill for Rockfill Columns

- (a) Crushed rockfill for the rockfill columns shall be measured and paid for on a weight basis. The weight to be paid shall be the total weight in tonnes of "Supply and Compact Crushed Rockfill for Rockfill Columns", completed in accordance with this specification, as measured in the field and accepted by the Contract Administrator.
- (b) No separate measurement shall be made of the compacted clay cap installed. Placing and compacting the clay cap shall be incidental to the work described in this Specification.
- (c) Crushed rockfill or other imported materials required to maintain working surfaces on Site shall not be included in the weight for payment.

### **E14. RIVERBANK GRADING**

#### E14.1 Description

- E14.1.1 This Specification shall cover the riverbank grading at the site, after the Rockfill Columns have been completed.

E14.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for an incidental to the satisfactory performance and completion of all work hereinafter specified.

#### E14.2 Construction Methods

##### E14.2.1 Riverbank Grading

- (a) Riverbank grading will be understood to mean the required excavation or backfilling so that the riverbank, after compaction is at finished grade, ready for erosion control blanket installation.
- (b) Grade riverbank as shown on the Drawings or as directed by the Contract Administrator
- (c) Excavate to a depth to meet the final grade requirements.
- (d) Place and compact suitable backfill material as approved by the Contract Administrator to meet the final grade requirements.
- (e) Compact backfill materials to a minimum of 90% Standard Proctor Density.

##### E14.3 Measurement and Payment

- (a) Riverbank grading will be measured and paid for on an area basis. The area to be paid for shall be the total number of square metres of "Riverbank Grading", completed in accordance with this Specification, as measured in the field and accepted by the Contract Administrator.

### **E15. STOCKPILING OF MATERIALS**

#### E15.1 Description

E15.1.1 This Specification covers the procedures for establishing and maintaining stockpiles of crushed rockfill and other materials handled on-site.

E15.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead labour, materials equipment, tool, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

#### E15.2 Construction Methods

- (a) The rate at which materials are delivered to the Site shall be controlled to minimize stockpiling and handling.
- (b) The Contractor shall review stockpile locations with the Contract Administrator prior to establishing stockpiles of material.
- (c) No stockpiling of materials shall be permitted at the top of the riverbank, along streets or on private properties.
- (d) The maximum size of stock pile shall be 100 tonnes of material on the working platform until a sufficient number of rockfill columns have been installed and larger stock piles can be established above completed rockfill columns without adversely affecting riverbank stability as determined by the Contract Administrator.
- (e) No stockpiles shall remain on the working platform overnight unless placed on top of backfilled columns and as approved by the Contract Administrator.
- (f) Stockpiled material shall be handled and maintained in a manner that prevents contamination with other soils and materials, debris, snow or excess moisture. Contaminated material shall be removed and replaced at the Contractor expense.
- (g) Stockpiles shall be maintained to prevent release of fine grain sediments into the river.

#### E15.3 Measurement and Payment

- (a) No separate measurement or payment shall be made for stockpiling of materials.

## **E16. EROSION CONTROL BLANKETS**

### **E16.1 Description**

- E16.1.1 This Specification shall cover supply and installation of erosion control blankets on exposed soils on the working platform and access ramp, and other areas disturbed during construction.
- E16.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

### **E16.2 Materials**

#### **E16.2.1 Erosion Control Blanket (ECB)**

- (a) Erosion control blanket shall be machine produced 100% coconut fibre matrix with a functional longevity of up to 12 to 36 months.
- (b) The blanket shall be of consistent thickness with the coconut fibres evenly distributed over the entire area at a minimum of  $0.27 \pm$  kg of coconut fibre/m<sup>2</sup>.
- (c) Biodegradable reinforcement netting on both sides manufactured from heavy weight cotton or jute fibre thread. (1.47 kg/100m of thread) . The mesh dimension shall be a 16 x 16 mm sewn together on 38 mm centres.
- (d) Approved products are:
- (i.) Erosion Control Blanket C32BD;
  - (ii.) North American Green C125BN
- (e) The Contractor shall submit all manufacturers' product specifications and recommended installation methods for the proposed erosion control blankets.

### **E16.3 Construction Methods**

#### **E16.3.1 ECB Installation**

- a) The Contractor shall follow the manufacturer's recommended installation procedure.
- b) Roll blanket out in direction of water flow.
- c) Securely fasten blanket against soil surface with a staggered staple pattern as per the manufacturer's recommendations and as accepted by the Contract Administrator, but no less than 2 staples per square metre.
- d) At blanket edges overlap upstream blanket over downstream blanket by a minimum of 150 mm and secure overlaps with a double row of staples, staggered 100 mm (maximum) apart.
- e) Install a double row of staples staggered at 100 mm apart and 100 mm on centre over the entire width blanketed area at 10 m intervals.
- f) The upstream edge of the blanket shall be secured in a 150 mm deep by 150 mm wide trench and anchored with staples at a maximum of 300 cm spacing. The trench shall be backfilled with compacted clay.

#### **E16.3.2 ECB Maintenance**

- a) The areas covered with ECB shall be regularly inspected, and in particular after severe rainfall, storms, or flooding, to check for blanket separation or breakage until the end of the warranty period or until vegetation growth has been established.

- b) Any damage or poorly performing areas as the result of storm or flood events shall be replaced/repared immediately. Regrading of the slope by manual labour methods may be required in the event of rill or gully erosion. Areas requiring replacement as directed by the Contract Administrator will be re-measured and additionally paid for at the Contract Unit Price for the Work item.
- c) The Contractor shall be compensated for replacing ECB only if the damage during storms or flooding is the result of conditions beyond his control, such as ice or floating debris or severe erosion. The Contractor shall not be compensated for replacing or repairing ECB damaged as a result of faulty materials or installation methods.

**E16.4 Measurement and Payment**

**E16.4.1 Erosion Control Blanket**

- a) Erosion Control Blanket and related Work specified herein will be measured on an area basis and paid for at the Contract Unit Price for "Supply and Install Erosion Control Blanket", completed in accordance with this Specification, and as accepted by the Contract Administrator.

**E17. INSTALLATION OF SILT FENCE**

**E17.1 Description**

**E17.1.1** This specification covers the erection of temporary silt fencing, which shall be installed and maintained at the location's shown on the drawing to control runoff and minimize the release of detrimental silt loading to watercourses.

**E17.1.2** The Scope of the work included in this specification is as follows:

- a) Supply and Install temporary silt fencing at the locations as indicated on the Drawings, prior to undertaking any other activities on the Site where silt fencing is required.
- b) Maintain the silt fencing in serviceable condition throughout the entire duration of activities at the Site where silt fencing is required, including final restoration and clean-up of the construction Site.
- c) Remove the silt fencing and restore the area where the fencing was installed, without further disturbing the area and without releasing any deleterious substances to the adjacent watercourse.

**E17.2 Materials**

**E17.2.1 Fence Posts**

- a) Fence posts shall be 100 mm diameter untreated wood posts or 50 mm diameter steel.

**E17.2.2 Filter Fabric**

- b) Filter Fabric shall be woven geotextile material specifically designed for a silt fence application, meeting the following minimum requirements:

<b>Property</b>	<b>Test Method</b>	<b>Value</b>
Grab Tensile Strength	ASTM D 4632	0.55 kN
Grab Tensile Elongation	ASTM D 4632	15%
Mullen Burst	ASTM D 4786	2060 kPa
Puncture	ASTM D 4833	0285 kN

Property	Test Method	Value
Trapezoid Tear	ASTM D 4533	0285 kN
UV Resistance	ASTM D 435	580%@500 hrs.
Apparent Opening Size	ASTM D 4751	0.60 mm
Flow Rate	ASTM D 4491	405 L/min/m <sup>2</sup>

Acceptable Product: "Amoco 2130 Silt Fence Fabric" or approved equal in accordance with B7.

E17.2.3 Wire Mesh

- a) Wire mesh shall be galvanized or plain metal with wire gauge = 3.0 mm, wire spacing @ 150 mm o/c

E17.2.4 Fencing Material Fasteners

- a) Staples or wire ties of sufficient strength and spacing to withstand 500 N (100 lbf) pull test at any point on the wire mesh.

E17.3 Construction Methods

E17.3.1 Ensure that not deleterious substances are discharged into the adjacent watercourse at any time during construction activities.

E17.3.2 Silt Fence Installation

- a) Excavate 150 x 150 anchor trench along alignment of silt fence as indicated.
- b) Ensure that fence posts are firmly driven into undisturbed soil, or are completely and firmly backfilled if installed via auger methods. Attach wire mesh as support backing for silt fence filter fabric with fasteners. Attach silt fence filter fabric on top of wire mesh in similar fashion. Overlap any fence seams (wire mesh or filter fabric) by 450 mm minimum. Ensure that wire mesh and filter fabric are installed on the upslope side of the post and are fully laid in anchor trench as shown
- c) Install and compact impermeable excavated materials into anchor trench and slope as indicated. Compact to 95% of maximum dry density (ASTM D-698).

E17.3.3 Silt Fence Maintenance

- a) Inspect silt fence daily, prior to starting any other construction activities. If fence posts are found loose or not upright, repair in accordance with installation procedure as specified. If silt fence is found to be loose or torn, repair or replace as necessary to comply with this Specification.
- b) If silt deposition at the fence is 300 mm or more in depth, carefully remove and dispose of silt offsite without disturbing silt fence.

E17.3.4 Silt Fence Removal

- a) The silt fence shall remain in place until the erosion control blanket has been installed, as determined by the Contract Administrator.
- b) Upon authorization of the Contract Administrator, remove all fence posts, wire mesh, fabric, and fasteners from Site.
- c) Restore area disturbed without releasing any deleterious substances to the adjacent watercourse.

E17.4 Measurement and Payment

E17.4.1 The supply, placement, and removal of silt fence shall be measured on a length basis and paid for at the Contract Unit Price per lineal metre for "Silt Fence". The length to be paid for shall be the total number of metres supplied and placed in accordance with this Specification, accepted and measured by the Contract Administrator. Payment of silt fence shall be in accordance with the following payment Schedule:

- a) Sixty percent (60%) of the Contract Unit Price per lineal metre for "Silt Fence" shall be paid following supply and installation.
- b) Forty percent (40%) of the Contract Unit Price per lineal metre for "Silt Fence" shall be paid following final removal.

E17.4.2 Removal of accumulated sediment from the silt fence is considered incidental to the Work and no separate measurement or payment will be made.

## **E18. EROSION AND SEDIMENT CONTROL**

E18.1 This Specification covers the supply, implementation and maintenance of erosion control measures during construction and not specifically covered in E17 to control the release of sediments into the river during and following construction.

E18.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E18.3 Materials

E18.3.1 In addition to the erosion control blanket to be installed after construction as specified in E17, the Contractor shall maintain a supply of erosion control products such as erosion control blankets, silt fencing, straw bales or mulch on Site at all times suitable for trapping and preventing sediments from entering the river during construction.

E18.4 Construction Methods

E18.4.1 Construction

- a) The Contractor shall plan and carry out all his Work in a manner that will mitigate the potential for the release of sediments into the river.
- b) Sediment control measure shall be implemented to meet the requirements of Fisheries and Oceans Canada.
- c) The Contractor shall monitor his Work and implement appropriate sediment control measures as Site conditions warrant. Such measures may include installation of silt fences, straw bales or other measure as required in the event that there is runoff from the Site due to thawing or rain.
- d) Upon completion of the construction Work, all surplus or waste materials, and materials containing fine-grained sediments shall be removed from the Site.

E18.5 Measurement and Payment

E18.5.1 No separate measurement or payment shall be made for erosion control measures supplied, installed and maintained under this specification. This Work shall be incidental to the Contract.

## **E19. PILES**

E19.1 Description

- a) This Specification shall cover the supply and driving of piles for the restoring the existing timber wall.

## E19.2 Submittals

### E19.2.1 Steel Mill Certificates

- a) The Contractor shall submit to the Contract Administrator for review and acceptance, at least ten (10) Business Days prior to the commencement of Work on site, the steel mill certificates.

### E19.2.2 Pile Driving System

- a) The Contractor shall submit to the Contract Administrator for review and acceptance, at least ten (10) Business Days prior to the commencement of the Work on site, the details of the proposed pile driving system.

## E19.3 Materials

### E19.3.1 Handling and Storage of Materials

- a) The method of handling and storing of piles shall be such so as to prevent any damage to the pile and to ensure that the design strength will not be affected by deterioration or deformation. The Contractor, in handling or lifting the piles, will not be permitted to drag them along the ground.
- b) Any piles excessively damaged through negligence or improper handling operations shall be immediately removed from the site and replaced with sound piles.

### E19.3.2 Steel

- a) Steel shall conform to CSA G40.21, Grade 350W or ASTM A572 Grade 50.

## E19.4 Equipment

- a) Pile driving equipment to be used by the Contractor shall be of such a capacity that the required penetration shall be obtained without damage being done to the piles.
- b) Pile driver leads shall be used to support the piles while they are being driven.
- c) The heads of steel bearing piles shall be cut squarely if required and protected by a cap. The cap shall be designed to hold the axis of the pile in line with the axis of the hammer. The top of the cap shall have a timber or polyethylene shock block.

## E19.4 Construction Methods

### E19.4.1 Location and Alignment of Piles

- a) The piles shall be located at the positions shown on the Drawings.

### E19.4.2 Driving of Piles

- a) The piles shall be driven to the positions shown on the Drawings.
- b) Piles shall be driven in the most practicable manner to ensure that the piles are in their correct final positions.
- c) Driving of all piles shall be continuous without intermission until the pile has been driven to final elevation.

### E19.4.3 Cut-Off of Piles

- a) After piles have been driven to the required penetration (and, if required, redriven), the Contractor shall mark the required cut-off elevation on each pile. The top of all piles shall be neatly cut off (true and level) at the cut-off elevation.

## E19.5 Quality Control

### E19.5.1 Inspection

- a) The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given.

## E19.6 Measurement and Payment

- a) Supply and Installation of Piles will be measured on a unit basis and paid for at the Contract Unit Price for "Piles", completed in accordance with this specification and as accepted by the Contract Administrator

**E20. TIMBER LAGGING WALL**

E20.1 Description

E20.1.1 This Specification shall cover the supply and installation of the timber lagging and backfilling of the shoring, including:

- a) Supply and installation of the timber lagging.
- b) Excavate in front and behind shoring to facilitate installation of lagging.
- c) Supply and placement of geotextile and granular backfill behind the shoring.
- d) Supply and installation of the perforated pipe drain behind the shoring.

E20.2 Materials

E20.2.1 Timber Lagging: No. 1 or No. 2 Grade SPF pressure treated with chromated copper arsenate to retention of 6.4 kg/m<sup>3</sup> in accordance with CSA 080.2. Field cuts of all pressure treated wood and cut ends of existing creosote piles shall be treated with two liberal coats of copper naphthenate preservative.

E20.2.2 Granular backfill: Base Course Material in accordance with table CW 3110.2 specification CW 3110-R6.

E20.2.3 Geotextile:

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**NON-WOVEN GEOTEXTILE PROPERTIES**

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	<b>ASTM Test Method</b>	<b>Units</b>	<b>Minimum Average Roll Values</b>
<b>PHYSICAL</b>			
Grab Tensile Strength	D-4632	N	710
Grab Tensile Elongation	D-4632	%	50
Mullen Burst	D-3786	kPa	2100
Puncture	D-4833	N	420
Trapezoidal Tear	D-4533	N	270

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**NON-WOVEN GEOTEXTILE PROPERTIES**

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	<b>ASTM Test Method</b>	<b>Units</b>	<b>Minimum Average Roll Values</b>
<b>HYDRAULIC</b>			
Apparent Opening Size	D-4751	mm	0.150
Permittivity	D-4491	sec	1.4
Flow Rate	D-4491	L/sec/m <sup>2</sup>	54

E20.2.4 Perforated Pipe: Perforated Drain Pipe shall be 100 mm diameter flexible perforated polyethylene pipe with a factory installed geotextiles filter fabric wrapping. Big "0" XTF0425 is an approved product.

E20.2.5 Clean Crushed Limestone, around perforated drain pipe shall be 20 mm crushed limestone meeting all physical and properties of Base Course Material in accordance with CW 3110-R6, with the exception that less than 5 percent by weight shall be finer than 0.080 mm.

#### E20.3 Construction Methods

E20.3.1 Perforated Pipe: The perforated pipe shall be installed at the bottom of the backfill behind the lagging. It shall be graded to drain toward the river. Clean crushed limestone shall be placed all around the pipe along its entire installed length.

E20.3.2 Lagging: Lagging shall be installed horizontally and shall be fitted tight to the rows of lagging above and below. Geotextile shall be placed behind the bottom rows of lagging and the bottom of excavation, prior to backfilling, as shown on the drawings. The top row of lagging shall be securely spiked to the row below.

E20.3.3 Granular Backfill: Granular fill behind the shoring shall be laced in uniform lifts and compacted with small hand operated vibratory compactor to a density of 95 percent of standard Proctor maximum dry density. The compaction effort shall be limited to prevent deflections of the shoring. The Contract Administrator will monitor the backfilling methods to determine that this level of compaction is met and that the shoring is not affected by compaction procedures.

#### E20.4 Measurement and Payment

- a) The supply and installation of Lagging will be measured on an area basis and paid for at the Contract Unit Price for "Timber Lagging Wall", completed in accordance with this Specification and as accepted by the Contract Administrator.